ONE300
Installation Manual

Version B
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http://www.oneaccess-net.com

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How to Read this Manual

The present document is broken down into 8 chapters.

Chapter 1 – Safety Instructions

This chapter provides the safety instructions for use and installation of the router.

Chapter 2 – Router Description

This section describes the router front and rear panels and the associated technical characteristics.

Chapter 3 – Interface Description

This section describes the router interfaces.

Chapter 4 - Installation

This chapter describes how to modify the jumper positions and gives instructions to connect the router.

Chapter 5 – Power-up

This chapter describes the device power-up and how to monitor the self-test progress.

Chapter 6 – Technical Characteristics

This section describes technical characteristics such as operating conditions.

Chapter 7 – Directives and Standards

This chapter details the list of standards, which the device complies with.

Appendix – Connection Description

This chapter provides the pin-out of cables that are compatible with the router.

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1 Safety Instructions

The following symbol instructs the user to read the manual carefully before any connection:

1.1 Connection to Power Supply

To connect the power supply, always follow these steps:

- Connect the DC input jack from the power supply to the DC 12V power input on the rear panel of the router,
- Connect the power supply to an AC electrical outlet (100-240 VAC). Plugging in the power supply turns on the router.

Unplug the AC input before assembling/disassembling any part on the device. The AC input is the part you must disconnect first. For safety reasons, you shall be able to easily access this part.

1.2 Overcurrent Protection

The product requires that the building's electrical installation is designed for protection against short-circuit (over current) protection.

A fuse or circuit breaker no larger than 240 VAC, 10A must be used on the phase conductors.

1.3 Safety Level Interface

All safety levels of the interfaces are described in each paragraph presenting the interfaces (paragraphs 3.1 to 3.6).

The interface modules and optional boards can be installed only in the products authorized by OneAccess and only by qualified staff as recommended in the installation manual.

The ONE300 with FXS interfaces has got a screw located on the rear panel. This must be permanently connected to the main protective earth.

2 Directives and Standards

2.1 Declaration of Conformity

Déclaration de conformité suivant les directives R&TTE, DBT et CEM
Declaration of Conformity according to R&TTE, LVD and EMC directives

ONE300

Routeur et adaptateur de réseau / *Router and network adapter*

Tension d'alimentation / *Supply voltage* : **100-240 Vac, 26,5 W, 50-60 Hz (12V –2,2A)**
Avec les cartes / *with the cards* : BRI300, MF100, MF300, WiFi

Nous déclarons que ce produit est présumé conforme aux exigences essentielles applicables des directives suivantes du Parlement Européen et du Conseil :

- la Directive R&TTE 1999/5/CE, du 9 mars 1999, concernant les équipements hertziens et les équipements terminaux de télécommunications et la reconnaissance mutuelle de leur conformité ;
- la Directive Basse Tension 73/23/CEE du 19 février 1973 concernant le rapprochement des législations des Etats Membres relatives au matériel électrique destiné à être employé dans certaines limites de tension ;
- la Directive CEM 89/336/CEE du 3 mai 1989 concernant le rapprochement des législations des États membres relatives à la compatibilité électromagnétique, modifiée par la Directive 92/31/CEE du 28 avril 1992.

We declare that this product has been given a presumption of conformity with the applicable essential requirements of the following directives of the European Parliament and of the Council :

- *R&TTE Directive 1999/5/EC of march 9th 1999, on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity ;*
- *Low Voltage Directive 73/23/EEC of february 19th 1973, on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits ;*
- *EMC Directive 89/336/EEC of may 3rd 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility, amended by Directive 92/31/EEC of april 28th 1992.*

Nous déclarons que les normes harmonisées suivantes ont été utilisées pour démontrer cette présomption de conformité et ont donné lieu aux rapports de tests suivants, disponibles sur demande.

We declare that the following harmonised standards were used to demonstrate this presumption of conformity and the results are included in the following tests reports, which can be made available on request.

IEC 60950-1:2001 / EN 60950-1:	**2001, First Edition**
EN300 386 V1.3.3	**(2005-04)**
EN301 489-17 V1.2.1	**(2002-08)**
EN300 328 V1.6.1	**(2004-11)**

Laboratoire Gyl Technologie pour la Sécurité – Gyl Technologie Laboratory for Safety
Laboratoire Gyl Technologie pour CEM – Gyl Technologie Laboratory for EMC

Le produit est marqué du symbole « CE » en application des directives citées ci-dessus.
The product is marked with the « CE » symbol in accordance with the directives mentionned above.

Responsable autorisé / *Authorized signatory* : Directeur Général / *Chief Operating Officer*

Nom / *Name* : Denis BEHAGHEL

[2]

2.2 Standards

The ONE300 is designed in conformity with the standards listed hereafter, provided that the basic housing, modules, interface boards and installation kits are mounted as recommended in the corresponding installation manual(s).

Safety	
EN60950-1: 2001, First Edition	Safety of information technology equipment, including electrical business equipment.

Environment:	
Climatic, physico chemical, mechanic, packing	
ETS 300 019-1 (95)	Environmental conditions and environmental testing for telecommunication equipment
In use: Temperature Controlled	
Test specification: - class T3.1 (normal) - class T3.1 (exceptional)	Part 1, Classification of environmental conditions
Storage: partly temperature controlled	
T1.1	Part 2, Specification of environmental test
Transportation: careful Transportation	
T2.3	

Electromagnetic Compatibility, immunity	
ETSI EN 301 489-17 V1.2.1 (2002-08)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services. Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment.
ETSI EN 300 328 V1.6.1	Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.
ETSI EN 300 386 V.1.3.3 (2005-04)	Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements.

Waste Electrical and Electronic Equipment	
202/96/EC	The ONE300 respects the European directive on the waste disposal from the electrical and electronics components.

Restricted use of Hazardous Substances (RoHS)	
2002/95/EC	The ONE300 respects the European directive on the restricted use of Hazardous Substances in electric and electronic equipment.

3 Router Description

3.1 Hardware Description

This section details the various types of services offered by the ONE300. The described configurations are the maximum configurations for the motherboard and the extension modules. Other configurations can be derived by under-equipment. Indeed, the ONE300 can have fewer interfaces compared to those presented below. The acronyms mentioned in bold between brackets locate markings of the interfaces back panel.

3.1.1 Motherboard Interface

The ONE300 motherboard is equipped with the following interfaces. The interface marking is indicated in bold and between brackets.

- 1 G.SHDSL access network (2 or 4 wires) or IMA SHDSL (8 wires) (**SHDSL**),
- 1 Console port (**CONSOLE**),
- 1 Managed switch 4 ports (**SWITCH**).
- 1 LAN access 10/100 Mbps (**ETHERNET**),

Optional Interfaces factory mounted:

- 1 PRI Interface T2 **(PRI)**,
- WLAN 802.11b/g with 2 antennas (managed by the method « antenna diversity »).

3.1.2 Extension Modules

Additional services are available in option on the daughter-board described below.

3.1.2.1 8 BRI board

This board in its complete configuration has the following interfaces. The interface marking is indicated in bold and between brackets.

- 8 ISDN Basic Rate Interfaces S0/T0 configurable TE or NT mode (**ISDN BRI**).

3.2 Front Panel

The front panel is provided with LEDS, which inform about the status of several router functions.

Figure 1. Front Panel

Leds	OFF	Green	Red	Blinking Red	Orange	Blinking Green
Status	Switched Off	Switched On & Operational	Switched On & Not operational			Reboot in progress
Uplink	No SHDSL lines configured	All SHDSL lines are synchronized	All SHDSL lines are not synchronized (loss of signal)	Minimum one configured SHDSL line is not synchronized (loss of signal)		Minimum one SHDSL line is in the progress of synchronization
IP	Not used	All IP interfaces are up	All IP interfaces are down		At least one IP Interface is not up (example: PPPoA not connected)	
WLAN	Not used	Interface up				Traffic in progress
Aux	No auto configuration	Auto configuration successfully completed				Auto configuration in progress

3.3 Rear Panel

This section details the various types of ONE300 rear panel so that the user can identify the interface type and port numbering.

It should be noted that only the fully-loaded configurations are represented. Other configurations can be derived by not providing some interfaces represented on the product. The configurations below are presented as an example. OneAccess reserves the right to market them or not.

3.3.1 Configuration with 8 BRI

The interface marking is indicated in bold and between brackets.

All the connectors are located on the rear panel:

- 1 SHDSL access port (RJ45) (**SHDSL**),
- 1 Configuration port and debug (RJ45) (**CONSOLE**),
- 1 LAN access port 100Base-T (RJ45) (**ETHERNET 1/0**),
- 4 FastEthernet switch ports (RJ45) (**SWITCH E3-0/3** to **E0-0/0**),
- 8 ISDN Basic Rate Interfaces (RJ45) (**ISDN BRI L0-5/0** to **L7-5/7**),
- Input for the external power supply connector (DC input jack, **12V-2.2A**),
- 2 connectors for WLAN antenna.

Figure 2. Rear panel with 8 BRI

Depending of the ordered configuration of the system, the rear panel may change.

3.3.2 Configuration with 1 PRI

The interface marking is indicated in bold and between brackets.

All the connectors are located on the rear panel:

- 1 SHDSL access port (RJ45) (**SHDSL**),
- 1 Configuration port and debug (RJ45) (**CONSOLE**),
- 1 LAN access port 100Base-T (RJ45) (**ETHERNET 1/0**),
- 4 FastEthernet switch ports (RJ45) (**SWITCH E3-0/3** to **E0-0/0**),
- 1 Primary Rate Interface (RJ45) (**PRI L0-5/0**),
- Input for the external power supply connector (DC input jack, **12V-2.2A**)
- 2 connectors for WLAN antenna.

Figure 3. Rear panel with 1 PRI

Depending of the ordered configuration of the system, the rear panel may change.

3.4 Configuration Identification

The different device configurations are identified by adding one or several letters to the device naming and printed on the router labelling sticker.

Option codification:

- **P**: T2 Interface (PRI)
- **B**: Digital voice interfaces (BRI)
- **D**: G.SHDSL access 1 to 2 pairs (2 to 4 wires),
- **M**: IMA access G.SHDSL 4 pairs (8 wires),
- **16**: 16 voice communication channels available
- **30**: 30 voice communication channels available
- **W**: Wireless LAN

Example:

ONE300-1P M30 is an ONE300 router equipped with:

- 1 IMA access G.SHDSL 8 wires,
- 1 PRI interface
- 30 voice communications

4 Interface Description

4.1 G.SHDSL Interface (SHDSL)

4.1.1 Safety Level of G.SHDSL (SHDSL) Interface

The G.SHDSL interface is TNV-1 (Telephone Network Voltage type 1).

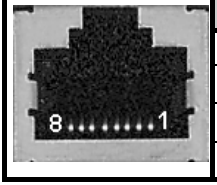
It must be connected to a standard telephone line (external).

4.1.2 Characteristics

- ITU-T G.991.2 for the G.SHDSL (Annex A and B), 2 or 4 wires,
- Capacity:
  - SHDSL 1 pair (2 wires): 192 kbps up to 2 320 kbps,
  - SHDSL 2 pairs (4 wires): 384 kbps up to 4 640 kbps,
  - SHDSL IMA G.SHDSL 4 pairs (8 wires): 768 kbps up to 9 280 kbps.

4.1.3 Connector Pinout

RJ45 connector:



Pin	Signal	Pin	Signal
1	Line 2	5	Line 1
2	Line 2	6	Line 3
3	Line 3	7	Line 4
4	Line 1	8	Line 4

4.1.4 Cables

For the connection of the G.SHDSHL interface, use the shielded cable that comes with the equipment.

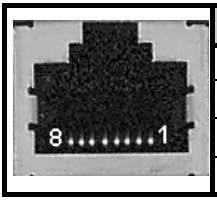
4.2 Console interface (CONSOLE)

4.2.1 Characteristics

- RS232,
- 9600 bps,
- 8 bits, 1 bit for stop, no parity.

4.2.2 Connector Pinout

RJ45 connector:



Pin	Signal	Pin	Signal
1	TX	5	NC
2	RX	6	NC
3	GND	7	NC
4	NC	8	NC

- TX: Emission
- RX: Reception
- NC: Not Connected
- GND: Ground

4.2.3 Cable

The console cable is defined in Appendix A.

4.3 LAN 10/100 Mbps interface (ETHERNET)

4.3.1 Safety level of LAN 10/100 Mbps interface

The Ethernet 10/100 Mbps auto-sense has a 'SELV' (Safety Extra Low Voltage) interface.

They must be used only for indoor applications, connected to a 10/100 Mbps interface, which has also the 'SELV' characteristics.

4.3.2 Characteristics

- 10Base-T and 100Base-TX,
- Half or full duplex,
- Auto negotiation.
- Auto MDI/MDIX.

4.3.3 Meaning of LED Colors

Green LED Lit	Link active
Blinking yellow LED	Traffic in progress

4.3.4 Pinout

RJ45 Connector:

Pin	Signal	Pin	Signal
1	TD (+)	5	NC
2	TD (-)	6	RD (-)
3	RD (+)	7	NC
4	NC	8	NC

4.3.5 Cables

The cables are shielded, crossover/straight cables with 4 twisted pairs. The switch supports auto detection of crossover/straight cable ('auto-MDI/MDI-X detection'); the transmission pairs are (1-2) and receive (3-6).

4.4 Switch Interface (SWITCH)

4.4.1 Safety level of Switch interface

The Ethernet 10/100 Mbps auto-sense has a 'SELV' (Safety Extra Low Voltage) interface.

They must be used only for indoor applications, connected to a 10/100 Mbps interface, which has also the 'SELV' characteristics.

4.4.2 Characteristics

The Ethernet Switch function offers 4 additional Ethernet ports. Each of this port can be switched and/or routed.

- 10/100 Mbits/s,
- Half or full duplex,
- Auto-negotiation,
- Auto MDI/MDIX.

4.4.3 Meaning of LED colors

Green LED Lit	Link active
Blinking yellow LED	Traffic in progress

4.4.4 Connector Pinout

RJ45 connector:

Pin	Signal	Pin	Signal
1	TD (+)	5	NC
2	TD (-)	6	RD (-)
3	RD (+)	7	NC
4	NC	8	NC

4.4.5 Cables

The cables are shielded, crossover/straight cables with 4 twisted pairs. The switch supports auto detection of crossover/straight cable ('auto-MDI/MDI-X detection'); the transmission pairs are (1-2) and receive (3-6).

4.5 ISDN PRI Interface (PRI)

This interface provides an E1/T2 digital voice access - G.703/G.704.

The external connection of the E1/T2 interface is made on the rear panel by RJ45 connector.

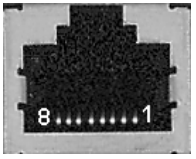
4.5.1 Safety Level of PRI Interface

The interface marked PRI offers an ISDN primary access (RJ45 connector). This interface is TNV-1.

For internal applications this interface must be connected to an S2/E1/T1 interface of TNV-1 type.

4.5.2 Connector Pinout

The connection to the access voice interface is located on the rear panel with the RJ45 connector. The connector pinout is as follows:



Pin	Signal	Pin	Signal
1	RX (+)	5	TX (-)
2	RX (-)	6	NC
3	NC	7	NC
4	TX (+)	8	NC

4.5.3 Cables

The cable used for the access is a shielded cable, which contains 2 twisted pairs with twisted pairs for the transmission (4-5) and receive (1-2) pairs.

4.6 T0/S0 Digital Interface (ISDN BRI)

The ONE300 supports 8 S0/T0 ISDN interfaces. The interfaces can be configured in TE or NT.

The ONE300 can receive a BRI module that has 8 digital interfaces. The connection of the digital voice interface is carried out on the rear panel via RJ45 connectors (1 connector per interface).

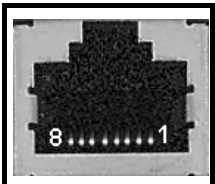
4.6.1 Safety Level of T0/S0 Interface

The T0/S0 modules marked ISDN BRI offer up to 8 ISDN (BRI) interfaces (RJ45 connector). These interfaces are TNV-1.

The factory configuration of these interfaces is T0, NT mode. Do not connect the interfaces to a public ISDN access without adapting jumper position, which can damage the product immediately.

4.6.2 Connector Pinout

The connection to the access voice interface is made on the rear panel via an RJ45 connector. The connector pinout is as follows:



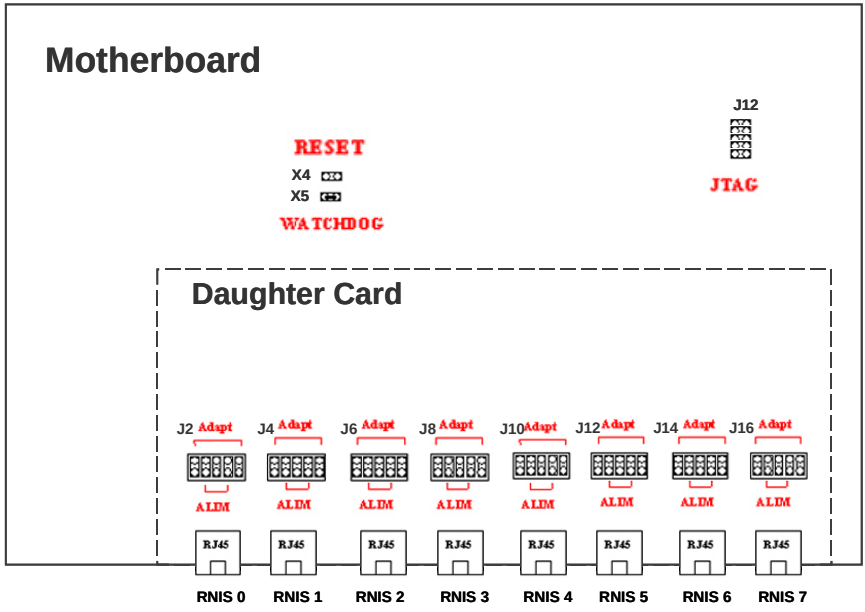
Pin	Signal	Pin	Signal
1	NC	5	TX (-)
2	NC	6	RX (-)
3	RX (+)	7	NC
4	TX (+)	8	NC

4.6.3 Jumper Setting

Every ISDN interface has four jumpers making it possible to configure the following options:

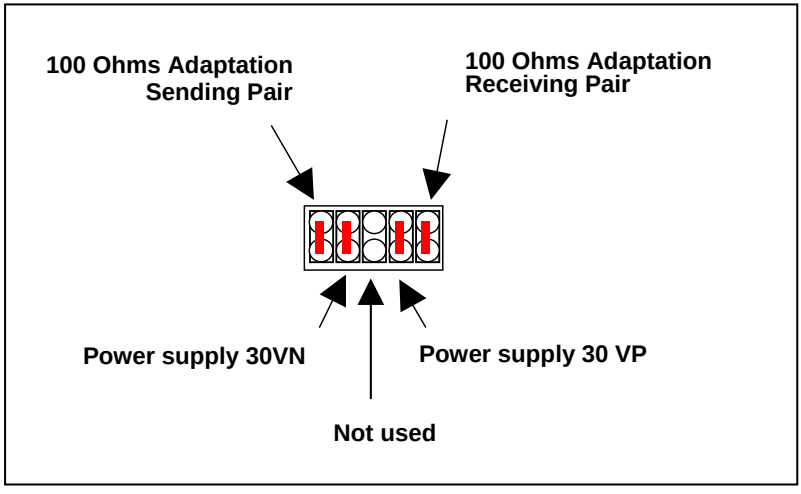
- 100 Ohms impedance adaptation,
- Power-feeding for ISDN phones

The drawing below presents the position of the 8 blocks of 4 jumpers on the daughter card and the WATCHDOG, RESET and JTAG position on the motherboard:



The WATCHDOG jumper must always be connected so that OneAccess guarantees the correct operation of the ONE300.

Description of a block of jumpers for a BRI interface:



Each block of jumpers allows:

- To connect or not a 100 Ohms impedance adaptation,
- To connect the power supply for ISDN terminal (30 volts).

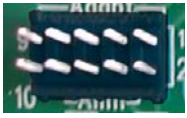
For the power feeding, jumpers operating in pairs:

- No power feeding, both jumpers removed,
- With power feeding, both jumpers set.

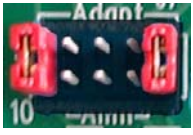
For 100 Ohms adaptation, jumpers can be used in sending, in receiving or in sending/receiving.

You find below some examples of configurations according to the position of the jumpers:

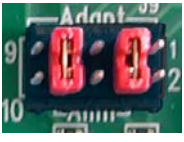
Configuration without impedance adaptation and power feeding of the terminal:

	**Configuration**	100 Ohms impedance adaptation disconnected**.**
		Power feeding for ISDN terminal disconnected.

Configuration with impedance adaptation and without power feeding of the terminal:

	**Configuration**	100 Ohms impedance adaptation connected**.** The first jumper of the pair is associated with the transmission, the second one with the reception.
		Power feeding for ISDN terminal disconnected.

Configuration without impedance adaptation and with power feeding of the terminal:

	**Configuration**	100 Ohms impedance adaptation disconnected**.**
		Power feeding for ISDN terminal connected.

Configuration with impedance adaptation and with power supply of the terminal:

	Configuration	100 Ohms impedance adaptation connected**.** The first jumper of the pair is associated with the transmission, the second one with the reception.
		Power feeding for ISDN terminal connected.

5 Installation

Always unplug the power AC cable before any hardware maintenance operation.

This chapter describes assembling/disassembling operations for optional modules. The user should be aware that the router software auto-detects on-board modules and interfaces.

All vacant slots of the rear panel must be obstructed with suitable face-plates in order to guarantee the respect of the EMC standards as defined in Chapter 7. Directives and Standard

5.1 Opening the Chassis

1 Unlock the 2 screws located on each side of the cover,
2 Remove the cover.

5.2 Extension Board

The installation or exchange of a daughter board requires remove the cover (see chapter 4.1).

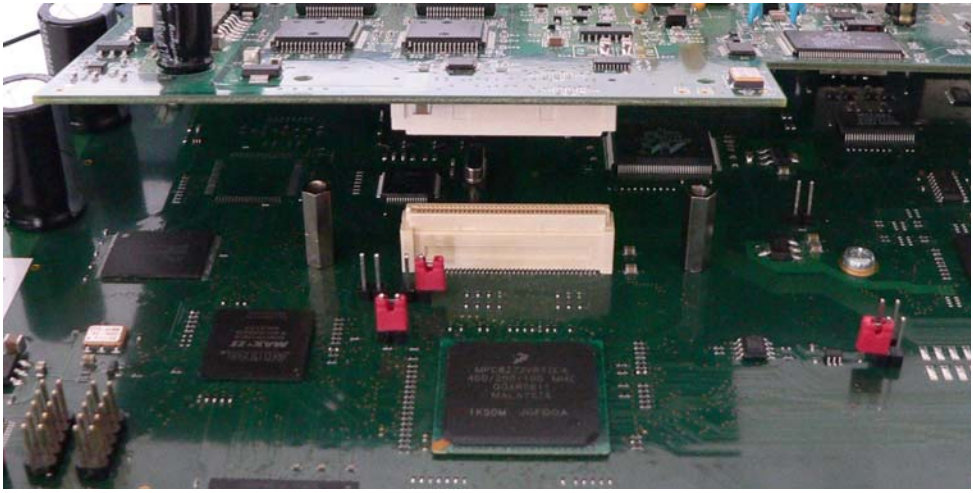


Figure 4. Removal-Installation of an Extension Board

5.2.1 Removal of an extension board

- Unscrew and remove the cover,
- Unscrew the fixing stand of the module on the motherboard,
- Loosen the module from the motherboard connection connector,
- Loosen the module from the motherboard connector by gently separating the motherboard and the module.

5.2.2 Installation of an extension board

- Unscrew and remove the cover,
- Remove the protective faceplate of the slot,
- Position the module so that the module metallic faceplate fits in the place made available by the removal of the faceplate,
- Lower the module while aligning the module with the motherboard connector,
- Plug the module into the motherboard connector.
- Screw the fixing stand

5.3 Connection

The external power supply is connected on the rear panel of the device.

The external power supply is delivered with the router package.

- Connect the 'jack' connector of the external power supply to the DC "12V – 2,2A" power input device connector,
- Connect the DC input jack from the power supply to the DC "12V-2,2A" power input on the rear panel of the router,
- Secure the power supply connection by installing the DC power supply cord into the plastic ring.

The device shall not be used with another power supply than a power supply provided by OneAccess.

6 Power-up

To power up the device, always follow these steps:

- Connect the DC power input jack from the power supply to the DC power input of the rear panel of the router,
- Connect the power supply to the AC mains (100-240 V AC).
  The connection of the power supply causes the switch-on of the equipment.

Few seconds after power-on, the device performs a series of self-tests and loads the software into memory (RAM), during which the 'STATUS' LED on the front panel blinks:

- The 'STATUS' LED light remains steady green if software initialization was successful,
- The 'STATUS' LED blinks in case of software absence or error during software loading.

Refer to the Software and ONEOS User Guide for more information.

7 Technical Characteristics

7.1 Climatic Environment

Operating Conditions:

Temperature	0° C ≤ T ≤ 45°C
Relative Humidity (HR)	5% ≤ HR ≤ 80%
Absolute Humidity	≤ 24g / m3
Altitude	≤ 2500 m

Storage Environment:

Temperature	- 25° C to 55° C
Relative Humidity (HR)	5% ≤ HR ≤ 80%
Absolute Humidity	≤ 24g / m3
Altitude	≤ 2500 m

7.2 Power Supply

External Power Supply 100-240 VAC / 26,5W (12V – 2,2A).

7.3 Dimensions

The dimensions of the housing are:

Width	320 mm
Height	1 U
Depth	200 mm

8 Directives and Standards

8.1 Declaration of Conformity

In progress

8.2 Standards

The ONE300 is designed in conformity with the standards listed hereafter, provided that the basic housing, modules, interface boards and installation kits are mounted as recommended in the corresponding installation manual(s).

Security	
EN60950-1:2001 First Edition	Safety of information technology equipment, including electrical business equipment.

Energy	
ETSI EN 300 132	Power supply interface at the input to telecommunications equipment
• Part 1	Operated by alternating current (ac) derived from direct current (dc) sources ETSI EN 300 132-3 : Power supply interface at the input to telecommunications equipment
• Part 3	Operated by rectified current source, alternating current source or direct current source up to 400 V Security

Environment :	
Climatic, physico chemical, mechanic, packing	
ETS 300 019-1 (95)	Environmental conditions and environmental testing for telecommunication equipment
In use : Temperature Controlled	
Test specification: - class T3.1 (normal) - class T3.1 (exceptionnal)	Part 1, Classification of environmental conditions
Storage: partly temperature controlled	
T1.1	Part 2, Specification of environmental test
Transportation: careful transportation	
T2.3	

Telecom	
ITU-T K21 on G.SHDSL (2003-07)	Resistibility of telecommunication equipment installed in customer premises to over-voltages and over-currents

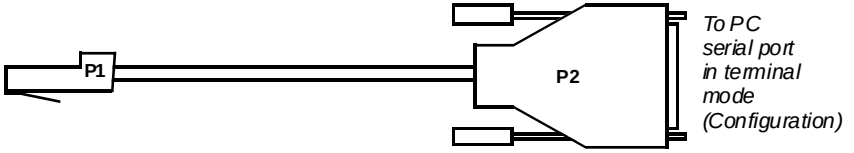
Electromagnetic Compatibility, immunity	
EN 300386 V.1.3.3 (2005-04)	Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements
EN 301489-17 V1.2.1 (2002-08)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment
EN 300328 V1.6.1 (2004-11)	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques;Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

Waste Electrical and Electronic Equipment	
2002/96/EC	The ONE300 respects the European directive on the waste disposal from the electric and electronic equipment.

Restricted use of Hazardous Substances (RoHS)	
2002/95/EC	The ONE300 respects the European directive on the restricted use of Hazardous Substances in electric and electronic equipment.

Annexe A: Console Cable

Catalog reference: ***4 022 332 B 00 Ed A***



RJ45 - P1	SIGNAL	SUB-D 9 Pts Female - P2
1	TX	2
2	RX	3
3	GND	5